

A BRIEF HISTORY OF *THE PRACTICAL ENTOMOLOGIST* AND ITS CONTRIBUTIONS TO ECONOMIC ENTOMOLOGY

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In August, 1865, The Entomological Society of Philadelphia (progenitor of The American Entomological Society) passed a motion permitting its publication committee to issue a monthly journal on "popular" entomology^{1*}. Envisaged as a means to "bring two classes of men, the scientific and the practical, in closer communication," *The Practical Entomologist* would, as such, help dispel the notion that "scientific men are not sufficiently practical, and that practical men are not sufficiently scientific" (Ennis *et al.* 1865). Since the society owned and operated the printing press used to publish its *Proceedings*², which addressed a more scientific audience, they reasoned that publication of the new periodical would not present an undue burden. Income generated from advertisements would defray publication costs; scientific contributions would emanate from entomologists throughout the United States, who would "most cheerfully lend their gratuitous aid," since "it is the happiness of this class of men to contribute their knowledge for the welfare of humanity" (Ennis *et al.* 1865).

Distinguished as the first U.S. journal devoted to economic entomology, *The Practical Entomologist* began publication October 30, 1865. Curiously, the editorial staff was not cited until the third issue, when Ezra T. Cresson, James W. McAllister and Augustus R. Grote were named as editors, with Benjamin D. Walsh serving as associate editor³. In an article entitled "Introductory," which appeared in the first issue, the editors denounced the majority of insecticidal "decoctions and washes," labeling them "as useless in application as they are ridiculous in composition." Whereas contemporary agricultural journals often advocated the use of such remedies, *The Practical Entomologist* offered an alternative approach to insect control:

"The enquiring Agriculturist who reads this Bulletin must not expect to find recommended any peculiar brew . . . as specific for any one or all of our insect enemies. He will find, however, . . . that the real conditions of life and the transformations of each species . . . will be faithfully recorded for his information . . . and that he will be enabled from the information thus obtained, to determine at what period of

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*Numerical superscripts refer to annotations to the text at the end of this paper.

the insect's life the greatest quantities can be most readily destroyed by the simplest means." (Anonymous, 1865a)

Generally written in a straightforward manner that kept scientific jargon to a minimum, *The Practical Entomologist* published brief articles related to insect pests and their identification, natural history and means of control. The journal's intended audience comprised agriculturists and horticulturists, as evidenced by the preponderance of advertisements for nurseries, seedhouses, farm implements and periodicals, e.g., *Prairie Farmer*, *American Bee Journal and Bee Gazette*, and the nascent *American Naturalist*⁴. However, at least some scientists gleaned information from *The Practical Entomologist*, since Walsh, who became its sole editor with Volume II, occasionally sent the journal to his correspondents, the most illustrious among them being Charles Darwin.

Walsh sent Darwin⁵ the first issue of the journal, in which his article on the Colorado potato beetle appeared (Walsh 1865a, discussed below), and his subsequent article on introduced insects in the U.S. (Walsh 1866a), of which Darwin said, "[it] interested me greatly and seemed very well done."⁶ In his book, *The Descent of Man*, Darwin (1896) cited Walsh's comments, published in *The Practical Entomologist*, concerning sexual dimorphism in the mandibles of corydalids and lucanids⁷, the tarsi of carabids and the abdominal appendages of dragonflies⁸. Baron C. R. von Osten-Sacken also was pleased to receive the periodical from Walsh.⁹

While the majority of articles in *The Practical Entomologist* were original, excerpts from *Treatise on Injurious Insects*, written by the German naturalist Vincent Köllar, often appeared in the earlier numbers¹⁰. A few publications of Asa Fitch, first New York state entomologist, were likewise extracted¹¹. Among the notable entomologists who published in the journal were A.R. Grote (1865, 1866), A.S. Packard (1865, 1866a-c), C.V. Riley (1866) and, as mentioned, B.D. Walsh, who published over 100 articles and essays¹² in the journal (Henshaw 1889).

Because of his prodigious contributions, Walsh's stylistic and substantive influence pervade the journal. Through his often trenchant essays, readers were disabused of entomological misnomers (e.g., "The three so-called army-worms"), misconceptions ("Borers — the plumugly theory") and misinformation ("Entomology run mad": "A mass of mistakes") (Walsh 1867a-d). The promotion of scientific fallacies ignited Walsh's ire, as illustrated by his reaction to a Maryland man, who proposed to sell his Hessian fly control method for \$100 per county despite his patent ignorance of its natural history:

"... one chief reason why Entomology is in bad repute with the

generality of Farmers, is that Scientific men usually shrink back from the disagreeable task of exposing such unmitigated humbugs as this precious [*sic*] Maryland scheme. And therefore, I have thought it good not to mince matters. . . . If the paper for which I am writing, or I myself as an individual, come to grief in consequence, the more's the pity. I have an invincible dislike for pretentiousness and charlatanism in all its forms — especially when it proposes to bleed the American public to the amount of \$360,000 for a bag of moonshine — and come what will of it, I am determined to express my own honest unbiased opinion on all such subjects.” (Walsh 1866b)

A regular feature of the journal was its “Answers to Correspondents,” which addressed questions and/or specimens sent from readers to the editors. Initially, Walsh was to have answered only inquiries from western correspondents (Anonymous 1865b), but he assumed full responsibility for the column six months after the journal’s inception until its demise in October, 1867. Acting in this capacity, Walsh encountered problems familiar to today’s taxonomists who perform service identifications:

“Your insects arrived in miserable order. Of course if you pack eight glass vials loose in a box, without even wrapping up each in a separate paper, some of them will get broken on the road. Besides, some of your numbers, being marked with pencil on the corks of the vials, I cannot read with any certainty. Here follow the names of your insects, so far as I can name them, many being out of the vials and mashed up with broken glass.” (Walsh 1866c)

As editor of *The Practical Entomologist*, Walsh called upon his entomological correspondents to contribute indirectly to the journal. For example, if unable to identify Diptera or Coleoptera sent him by readers, Walsh forwarded the specimens to Baron von Osten-Sacken or John LeConte, respectively, whose comments and/or determinations would then appear in print¹³. At times, these exchanges resulted in the description of new species¹⁴, as was the case with the grape rootworm, *Fidia viticida* Walsh, a serious economic pest that could instead have borne LeConte’s name. The latter had given the name, “*Fidia* undescribed,” to a specimen sent him by Walsh in 1861; in November, 1866, Walsh wrote LeConte, reminding him of the insect, which had since been infesting cultivated grapevines in Kentucky and elsewhere. Walsh continued:

“Now you once observed that insects must be properly named, in order that Farmers may anathematize them properly. Therefore, as

this *Fidia* still lacks a specific name . . . I thought I would recommend him to your attention. In case you accept the charge, please send the results directed to me, including the name & the description if n. sp., and I will publish the same in the P.E. I could easily, of course, take the generic name & the fact of its being undescribed from your mouth, & publish a description myself, thereby acquiring all the *kudos* of describing a n. sp. But what you have done is more than half the battle, & therefore it is but fair that you should give your name to the species."¹⁵

Six months later, Walsh (1867e) published a description of *Fidia viticida* in *The Practical Entomologist*. Although reference is made to the new species in one of the three intervening extant letters from Walsh to LeConte¹⁶, it is not revealed how it came to be named by Walsh¹⁷. Apparently no ill will resulted from the outcome, since their correspondence continued until 1869, the year of Walsh's death.

The apple maggot, *Rhagoletis pomonella* Walsh, is yet another insect of economic importance that readers of *The Practical Entomologist* brought to Walsh's attention. Aside from the substantial monetary losses attributed to this pest, current interest in the apple maggot surrounds its differentiation into host races on its major host plants, hawthorn and apple (Deihl and Bush 1984; McPheron *et al.* 1988). The formation of host races has been proposed as a mechanism of sympatric speciation (Bush 1975); the shift to a new host provides reproductive isolation without a period of geographic isolation. It is remarkable that Walsh, in discussing the apple maggot's host plant shift from wild hawthorn to introduced apple, postulated that the new species arose in sympatry *via* what he termed "phytophagic isolation"¹⁸.

Perhaps the most pedagogical articles published in *The Practical Entomologist* were the series of three entomological lessons written by A.S. Packard (1866a-c), in which were discussed the classification, internal and external morphology and development of insects and related taxa. Walsh commented on the lessons in a letter to Osten-Sacken:

"I fully agree with your opinion about Packard's articles on Entomology in the P.E. I long ago objected to them in letter to Cresson; and now that I have control of the paper, there will be no more of them."¹⁹

In all likelihood, Walsh considered Packard's subject matter inappropriate for the journal, since Walsh himself referred readers to his *Proceedings* publications when their queries required "scientific" rather than "practical" answers²⁰. Similarly, in acknowledging a taxonomic

key that LeConte had prepared²¹ at Walsh's request, the latter wrote:

"I should have liked to have printed your whole letter to Cresson; but as the *Practical Entomologist* is obliged to be as "practical" as possible, I have been obliged to confine myself to the Analytical Table."²²

In keeping with the "practical" format of the journal, Walsh also refrained from discussions of evolution in *The Practical Entomologist*, although he staunchly defended Darwin and elsewhere published evidence supporting his theory of species origin (C.A. Sheppard, manuscript in preparation).

One of the most famous articles published in *The Practical Entomologist* concerned the geographic spread of the Colorado potato beetle, *Leptinotarsa decemlineata* Say. According to the article, written by Walsh (1865a), the beetle was endemic to the eastern slopes of the Rocky Mountains, where it fed on native buffalo bur, *Solanum rostratum* Dun., until settlers to the area brought with them the potato, *Solanum tuberosum* L. Finding the cultivated plant palatable, the beetles allegedly moved eastward, "from potato patch to potato patch," the first report of heavy infestations originating from eastern Nebraska in 1859, followed by outbreaks in Iowa in 1861, and Illinois in 1864.

Casagrande (1985) recently refuted this scenario, in light of evidence that the beetle had been collected from the Iowa - Nebraska border as early as 1811, by Nuttall, and again by Say in 1819-20. As Casagrande (1985) points out, Walsh apparently was unaware of earlier collections of the beetle from that area²³, and thus, incorrectly interpreted the 1859 Nebraska infestation as the recent eastward movement of the beetle from Colorado; in fact, the beetle spread as a potato pest from Nebraska both eastward and westward (Casagrande, 1985).

To Walsh's credit, in an attempt to chronicle accurately the spread of the beetle, he obtained numerous "first appearance" reports from various periodicals²⁴ and sought information on the beetle's distribution from coleopterists:

"It seems to me important, before the thing is forgotten, to collect & register as far as possible places & dates regarding this matter; & I have accordingly collected a considerable amount of evidence thereanent²⁵, & am writing to my correspondents for more. Will you oblige me by contributing into the general stock what you know yourself on the subject? I write to Ulke²⁶ by this mail."²⁷

Throughout its two year duration, the scope of *The Practical Entomologist* remained true to its title, but occasionally a political article or

two peppered its pages. When Townend Glover, first USDA entomologist, reported that his duties were not restricted to insects, but also included preserving and arranging "all the objects of general natural history, such as insectivorous birds, specimens of fruits, textile materials. . ."28, Walsh exclaimed,

"Can we wonder that, under such circumstances, Mr. Glover's Report contains scarcely any original investigations. . .? When he should have been looking after the Bugs, he was set to work on the Birds; if he attempted an attack upon the Army-worm, he was called off to unpack a basket of apples. . . Will our rulers at Washington never learn, that it is bad policy to put a square man into a round hole? And that, whether round or square, no one man can fit a hole that is as wide across as the dome of the Capitol?" (Walsh 1866d)

Because of what he viewed as their political impotence, even the farmers were castigated by Walsh:

"Probably about nine-tenths of the Members of Congress and of our different State Legislatures are lawyers . . . and the remaining one-tenth are Physicians, Merchants and Manufacturers, with a very small sprinkling of Farmers . . . What do they know about Farmers, except that they have got votes? Or about Farmers' pockets, except that most of the taxes come out of them? . . . if one-hundredth part of the pecuniary damage, that is annually inflicted by Noxious Insects upon the farmers, were inflicted, instead, upon the Merchants or upon the Manufacturers, thousands of dollars would have been long ago voted by Congress to discover some remedy or some palliation of the evil. Why? Because the Merchants, as a class, act in one solid body; the Manufacturers, as a class, act in one solid body; while the Farmers of the United States are nothing but a mere rope of sand. It is the old Greek fable of the bundle of sticks, practically translated into modern English for the benefit of 'whom it may concern.'" (Walsh 1866a)

Although the minutes of The American Entomological Society are devoid of any reference to *The Practical Entomologist*, the journal's rise and fall are recounted in its pages. Initially, the journal was distributed gratuitously, the only charge being for postage at 12 cents per year. However, by the third issue, publication costs (the greatest of which was paper) were exceeding the income from advertisements, which was the sole means of support for the journal. The editors appeared openly disheartened:

"We had, on commencing, every cause to believe, that, by reason of the large circulation of the *Bulletin*, those doing business of interest to the Farmer and Agriculturist would patronize the advertising columns, and thereby assist us in establishing and maintaining the only periodical in this country devoted entirely to Practical Entomology. We shall go on, now that we have began [*sic*], and crowd into the limited space all the information it will hold... It is to be regretted that a work of this kind does not receive more encouragement than it does, for there is nothing so much needed by Agriculturists as information concerning the habits of Insects that are injurious to their crops of all kinds, with reliable remedies for their destruction." (Anonymous 1865c)

An exuberant tone opened issue 5, since circulation had approached nearly 8,000 copies monthly and the advertising columns were nearly filled:

"The encouragement we have received incites us to new energy. Three editions of our first three numbers have already been printed, and from present indication, we shall soon publish a fourth." (Anonymous 1866a).

The tremendous increase in circulation necessitated a yearly subscription fee of 50 cents beginning with issue 6, since publication expenses continued to exceed funds generated from advertisements (Anonymous 1866b). However, while people were willing to pay 12 cents postage per year to receive the paper, they were "very slow in making up their minds to send 50cts. a year."²⁹ The editors made no public statement concerning the paper's finances again until issue 9, when the dire situation was conveyed in an essay entitled, "Shall this paper be continued another year?":

"Since we were obliged to stop the gratuitous distribution, and to ask the small subscription price of 50 cents a year, some appear to think that there is a screw loose somewhere, and that the Committee, growing tired of giving the paper away, want to put money into their own pockets... This is not so... they have, on the contrary, been obliged to put their hands into their own pockets to the extent of several hundreds of dollars... Certainly this state of things cannot be expected to continue, nor will the Committee undertake the publication of the *Practical Entomologist* another year unless they have some reasonable assurance that it will be self-sustaining." (Anonymous 1866c)

The second year of publication was to have been contingent upon the guarantee of 5,000 subscribers to the periodical. As a means to this end, "club" incentives were offered, whereby those sending the names of 20 or more subscribers would receive premiums on books of reader interest.³⁰ With the last issue of volume I, the editors announced that although the goal of 5,000 subscribers had not been met, they believed it would be reached by the next number; thus, they embarked upon another year of publication.

Pleas for 10,000 subscribers³¹ began appearing with the third issue of volume II, and continued until six issues later, when a publisher's notice announced, rather acridly, the imminent termination of the periodical:

"It has become very evident that the time has not yet arrived, when the Agricultural community — to whom economic entomology is of the most importance — will sustain a work devoted exclusively to that subject. The devastations of injurious insects will, no doubt, continue to increase as long as the farmer, gardener and orchardist remain ignorant of the habits of these insects, and until they learn how to distinguish their friends from their enemies. They will doubtless awake from their apathy when they find that the "Hessian Fly," the "Wheat Midge," and the "Chinch-bug" have destroyed the crops of grain. . . [here follows a list of serious insect pests and associated crops]; and then, *perhaps*, they will — when too late — seek for practical knowledge. . ." (Anonymous 1867a)

Walsh's experience with *The Practical Entomologist* left him somewhat jaded, as the following passage from a letter of Walsh to Darwin reveals:

"I have recently returned like a dog to his vomit, and again become Editor of a Monthly Periodical³² (of which I enclose a Prospectus) devoted to Economic Entomology. I think this time we shall make it a success; at all events I hope and expect it, which is more than I ever did as regards the old 'Practical Entomologist,' from the total lack of business talent and tact in the Society that published it."³³

Still, in an earlier letter to Darwin, Walsh acknowledged that the association served him well:

"Editing the *Practical Entomologist* does undoubtedly take up a good deal of my time, but I also pick up a good deal of information of real scientific value from its correspondents."³⁴

Indeed, in addition to the cases cited earlier, Walsh learned of and named several new species through his contact with readers of the journal.³⁵ Given that he acted as the journal's sole editor for the second year but remained totally removed from its business matters, it seems likely that Walsh felt his efforts had been mismanaged.

E.T. Cresson, a founding member of the society that published *The Practical Entomologist*, opined that the journal had to be abandoned because "the time had not yet come for the agricultural public to realize the importance and value of such knowledge" (Cresson 1909). Entomological historian Herbert Osborn (1937) echoed this view, stating that the number of entomologists was too small, and the agricultural public too indifferent, to provide adequate support. Another notable historian, L.O. Howard (1930), lavished praises on the journal, stating, "it seems incredible, in view of the extremely valuable articles, notes and answers to correspondents which it contained, that it should not have continued to receive the wide-spread support of farmers and fruit-growers at the ridiculously small price of 50 cents a year."

Having read through the pages of *The Practical Entomologist* more than 50 years after Howard's (1930) writing, this author shares his sentiments:

"The two volumes abound in sound information. The contributions by Walsh, written in his vigorous style and indicating everywhere his opinion of charlatanistic recipes, lend great readability to the journal even at this date. . . The entomologist of today who does not spend an hour or so with *The Practical Entomologist*. . . loses a great deal."

FOOTNOTES

¹Minutes of The Entomological Society of Philadelphia for August 14, 1865.

²The *Proceedings* were superseded by the *Transactions of the American Entomological Society*, still in publication.

³Presumably, at least Cresson and McAllister edited the first two numbers, since both resided in Philadelphia and were organization members of the society; Grote lived in New York, Walsh in Illinois.

⁴Although currently a scientific journal, the *American Naturalist* at the time was billed as "as Popular Illustrated Magazine of Natural History . . . without those technicalities which often render the mass of such reading tedious and difficult." In *The Practical Entomologist* (hereafter PE) II:86 (1867).

⁵B.D. Walsh to C. Darwin, letter dated Nov. 12, 1865, C.V. Riley Collection, Library of Field Museum of Natural History, Chicago (hereafter, LFMNH).

⁶*Ibid.* C. Darwin to B.D. Walsh, letter dated Dec. 24, 1866.

⁷PE II:88 (1867)

⁸PE II:107 (1867)

⁹B.D. Walsh to C.R. Osten-Sacken, letters dated Nov. 28, 1866 and Apr. 1, 1867, Museum of Comparative Zoology, Harvard University (hereafter, MCZ).

¹⁰See PE I:35-37; 46; 69-71; 83; 90 (1866)

¹¹See PE I:22-23 (1865). The publications extracted were: The current month, *Abraxas? ribearia*. Trans. N.Y. State Agric. Soc. 7:461-469 (1847); First and Third Reports, Trans. N.Y. State Agric. Soc. 14:705-880 (1855), and 16:315-490 (1857, but misdated and bound as 1856). Fitch himself never published in PE.

¹²The estimate is mine, whereby monthly "Answers to Correspondents" were counted as a single article rather than individually, as in Henshaw (1889).

¹³e.g., see PE II:8; 9; 10 (1866); PE II:47 (1867).

¹⁴e.g., see PE II:9; (1866).

¹⁵B.D. Walsh to J. L. LeConte, letter dated Nov. 6, 1866, Collection #B/L493, American Philosophical Society Library, Philadelphia (hereafter, APSL).

¹⁶*Ibid.* B.D. Walsh to J. L. LeConte, letter dated Nov. 30, 1866.

¹⁷Unfortunately, LeConte's letters to Walsh, if extant, have not been located by this writer.

¹⁸Although it is impossible to state unequivocally whether he was proposing a conditioned host plant preference ("Hopkins host selection principle") or a genetically determined one, Walsh has been cited as the progenitor of both theories by 20th century entomologists (C.A. Sheppard, manuscript in preparation).

¹⁹B.D. Walsh to C.R. Osten-Sacken, letter dated Nov. 28, 1866 (MCZ).

²⁰e.g., see "Answers to Correspondents" [to Willie C. Fish] PE II:103, and [to V.T. Chambers] PE II:119 (1867).

²¹Published in "Answers to Correspondents" [to Chas H. Peck] PE II:9 (1866).

²²B.D. Walsh to J. L. LeConte, letter dated Sept. 30, 1866 (APSL).

²³Walsh (1865a) did state that the beetle "was first discovered by Say in 1823 in the regions bordering on the Upper Missouri river"; perhaps he thought the "regions" were further upstream than is now known to have been the case, or he believed that adaption to potato foliage occurred in Colorado rather than at the eastern edge of the beetle's range.

²⁴The reports are cited in Walsh (1865a).

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²⁶Henry Ulke, noted coleopterist. (For biographical sketch, see Proc. Entomol. Soc. Washington 12:105-111 (1910).)

²⁷B.D. Walsh to J. L. LeConte, undated letter (APSL).

²⁸From Glover's Report of the entomologist, printed in Annual report of the (U.S.) Commissioner of Agriculture (1863), pp. 561-579.

²⁹E.T. Cresson to J.A. Linter (Asa Fitch's successor as state entomologist of New York), letter dated May 26, 1866, printed in Calvert (1928).

³⁰PE I:105 (1866); books are listed on p. 116 of the same number.

³¹See PE II:36 (1866); PE II:48; 60; 76; 82; 85; 88 (1867). These were terse requests set in small type: "Wanted 10,000 subscribers to the Practical Entomologist"; "We want 5,000 more subscribers to the Practical Entomologist. Will not each present subscriber try to send us another?" According to Bardolph (1948), the journal reached a circulation of 20,000, which appears to be inconsistent with the circumstances chronicled herein.

³²*The American Entomologist*, which Walsh co-edited with C.V. Riley. Walsh died before the completion of the second volume.

³³B.D. Walsh to C. Darwin, letter dated Aug. 29, 1868, record unit 7076, C.V. Riley papers, 1866-1895, scrapbook #9, Smithsonian Institution Archives, Washington, D.C. (hereafter, SIA).

³⁴B.D. Walsh to C. Darwin, letter dated Feb. 25, 1867, printed in Darwin and Seward (1903).

³⁵See PE II:34 (1866); PE II:58; 117 (1867).

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